



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,466	02/17/2004	Bo Su Chen	H0005002(1139.1154101)	1775

22913 7590 01/30/2006

WORKMAN NYDEGGER
(F/K/A WORKMAN NYDEGGER & SEELEY)
60 EAST SOUTH TEMPLE
1000 EAGLE GATE TOWER
SALT LAKE CITY, UT 84111

EXAMINER

LEPISTO, RYAN A

ART UNIT	PAPER NUMBER
----------	--------------

2883

DATE MAILED: 01/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/781,466

Applicant(s)

CHEN, BO SU

Examiner

Ryan Lepisto

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16-22 and 24-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 5-14, 16-18, 20-22, 24-27 and 30-36 is/are rejected.
- 7) ☒ Claim(s) 2-4, 19, 28 and 29 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. **Claims 2 and 36** are objected to because of the following informalities: The dash between "the" and "detector" in claim 2 should be deleted and the preamble of claim 36 should be amended to match the preamble of the parent claim 27. Appropriate correction is required.
2. **Claim 35** is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitations of claim 35 are already in the parent claim 9.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 14** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The added limitation of "to receive uncollimated light" is new matter that was described in the specification.

4. **Claims 28 and 29** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. These claims recite the limitation "substantially convex lens." There is insufficient antecedent basis for this limitation in the claim. There is only basis for an optical element having a substantially convex side.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1 and 5** are rejected under 35 U.S.C. 102(e) as being anticipated by **Ukrainczyk et al (US 2003/0053751 A1)** (Ukrainczyk). Ukrainczyk teaches an optical coupler (Fig. 3A) comprising an optical element (7) having a flat side (left side) and a convex side (right side), a detector (not shown, paragraph 0029) spaced from the convex side of the element (7) since the light exits the element (7) on that side, an

optical fiber (8) positioned to abut the flat side of the element (70) and is perpendicular to the optical axis of the coupler so the element (7) delivers light from the fiber (8) to a detector (detector output shown in Figs. 4A, 4B) without coupling light back into the fiber (paragraph 0025).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 6-9, 12-14, 16-18, 21-22, 24-27, 30-33 and 35-36** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kathman et al (US 6,496,621 B1)** (Kathman) in view of **Dempewolf et al (US 5,815,318)** (Dempewolf).

Kathman teaches an optical coupler (Figs. 3-4) comprising a light source (not labeled) (can be a VCSEL, column 3 line 8 or a LED since the purpose of the invention is to avoid feedback from cheaper sources such as LEDs, column 1 lines 33-36), an optical element (32) having a first and second surface, an optical medium (30) having an end adjacent to the first side of and integral to (and therefore abutted to) the optical element (32) wherein both are made from an optical wafer (column 5 lines 54-64) and therefore have equal indices of refraction and wherein the embodiment of Fig. 4 has a negative axicon surface (discontinuous slope or groove) (column 6 lines 32-48), a detector spaced a certain distance from an output fiber (14) (column 5 lines 6-8) to

measure the amount of power in the signal wherein the optical element (32) produces a diverged (see Figs. 3 and 4) light pattern in the output fiber (14) (and down along the fiber and therefore will cross the focal point) that has reduced light intensity near the center of the light pattern (Fig. 2B) (column 6 lines 5-6) and that any light that is reflected by from the detector (14) is focused away from the source (column 6 lines 8-14) (no light back to the source is less than half).

Kathman does not state explicitly that the light pattern with reduced intensity near the center is produced on the detector or that the focal point of the element is in front of behind the detector.

Dempewolf teaches an optical coupler (Fig. 2a for example) wherein a source (12) couples light through a lens (46) to a detector (14) to monitor the system.

Kathman and Dempewolf are analogous art because they are from the same field of endeavor, coupling sources to detectors using transfer lenses.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to that the measuring of power in the coupler taught by Kathman can be done as shown in Dempewolf with a detector at the output of the transfer element since this would allow for the power to be measured at different distances as taught by Kathman if different length output elements are used to couple to the detector as taught by Dempewolf. Kathman further teaches that the power is measured at varying distance in the output fiber so it would be obvious that measurements will be taken both in front and behind the focal point of the element since as shown in Figs. 3 and 4 the rays form an annular shape instead of diverging to a single point at the output. The light

will change to a more spiral shape (Fig. 2A) later in the output fiber so it would be obvious that this would be near the focal point and also near where the power is measured.

The motivation for doing so would have been increase coupling efficiency by being able to use different transfer elements to collimate or circularize or any other needed modulating of the signal to maximize the signal at the detector (Dempewolf, column 3 line 45 – column 4 line 2).

7. **Claims 10-11, 20 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kathman in view of Dempewolf as applied to claims 6-9, 12-14, 18, 21-22, 24-25, 30-33 and 35 above, and further in view of **Davinson (US 4,357,104)**.

Kathman in view of Dempewolf teaches the optical system described above.

Kathman in view of Dempewolf does not teach expressly the light source including an optical fiber.

Davinson teaches an optical transmission system wherein an optical fiber (Fig. 1, 11) delivers an optical signal from a laser or LED source to a lens (17) (column 3 lines 64-67).

Kathman in view of Dempewolf and Davinson are analogous art because they are from the same field of endeavor, optical systems comprising a source optically coupled to a lens that then optically couples to a detector.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a fiber with the laser or LED light source as taught by Davinson

in the optical system and laser or LED source as taught by Kathman in view of Dempewolf. Applicant has not disclosed that having the fiber about the lens provides an advantage, is used for a particular purpose, or solves a stated problem and therefore is not critical. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the source and fiber as taught by Kathman and Dempewolf in view of Davinson because the resulting light beam will have an annular distribution just as disclosed by applicant.

The motivation for doing so would have been to increase the number of applications the optical system can be employed in by allowing the source fiber to not only emit an optical signal, but also receive on if necessary (Davinson, column 3 lines 11-19).

Allowable Subject Matter

8. **Claims 2-4, 19 and 28-29** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 2, 4, 19 and 28: These claims would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims because the latter, either alone or in combination, does not disclose nor render obvious an optical coupler comprising an

Art Unit: 2883

optical element having a flat and convex side, a detector spaced from the convex side and a fiber adjacent to the flat side such that light delivered by the fiber produces a partial annular shaped light pattern on the detector or that the detector is positioned relative to the element so that the light is not defocused on the detector or the convex side having a slope discontinuity located near the optical axis, in combination with the rest of the claimed limitations.

With regard to claims 3 and 29: These claims would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims because they depend from claims with allowable subject matter.

Response to Arguments

9. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following are related to the state of the art: Uebbing et al (US 6,349,159 B1), Goshima et al (US 3,947,093), Gorman et al (US 4,961,622).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Lepisto whose telephone number is (571) 272-1946. The examiner can normally be reached on M-F 7:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

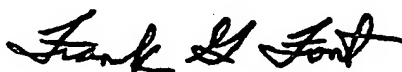
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ryan Lepisto

Art Unit 2883

Date: 1/10/06



Frank Font

Supervisory Patent Examiner

Technology Center 2800